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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/579,169	05/25/2000	Victor Firoiu	2204/196	7292

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EXAMINER

PHAN, THAI Q

ART UNIT PAPER NUMBER

2128

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/579,169	<b>Applicant(s)</b> FIROIU ET AL.	
	<b>Examiner</b> Thai Phan	<b>Art Unit</b> 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-92 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-92 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### **DETAILED ACTION**

This Office Action is in response to applicants' amendment filed on 02/01/2006. Claims 1-92 are pending in the action.

#### ***Drawings***

Formal drawings filed on 12/20/2004 have been received and put in the record.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claims 1-92 are rejected under 35 U.S.C. 102(e) as being anticipated by Choudhury et al, US Patent no. 6,092,115.

As per claims 1, 5, 43-44, 57, and 61-62, Choudhury anticipates a method and system with program codes for analyzing and supporting connection queuing for feedback controlled traffic with feature limitations very similar to the claimed invention (Summary of the Invention). According to Choudhury, the systemized method includes means and steps:

Determining a queue function based upon predetermined system traffic conditions for a first node (col. 4, lines 27-41),

And determining a control function for the second node based upon the queue function or queue models (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 6, line 31 to col. 7, line 26).

As per claims 2 and 45, Choudhury anticipates a random early detection scheme in queue control function.

As per claim 3, Choudhury anticipates a bounded discontinuity as claimed (col. 5, lines 24-34, for example) to avoid data traffic flow congestion.

As per claim 4, Choudhury anticipates queue size estimate including minimum and maximum queue size estimate, including two linear segments as claimed (col. 5, lines 42-61, col. 6, lines 5-7, lines 31-48, for example).

As per claim 6, Choudhury anticipates packet drop and amount of data packet drop to meet acknowledgement agreement from the buffer (cols. 5-6).

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As per claims 7-13, Choudhury anticipates network nodes, TCP network, data acknowledgement in the network, drop rate, etc. (cols. 4-6).

As per claim 14, Choudhury anticipates a method and system with program codes for analyzing and supporting connection queuing for feedback controlled traffic with support capacity and with feature limitations very similar to the claimed invention (Summary of the Invention). According to Choudhury, the systemized method includes means and steps:

Determining a round trip transmission time for the link (col. 4, lines 1-14),

Determining a queue function based upon predetermined system traffic conditions for a first node (col. 4, lines 27-41),

And determining a control function for the second node based upon the queue function (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 6, line 31 to col. 7, line 26).

As per claims 15-17, Choudhury anticipates data packet flows through the queue, packet size, and data drop rate as claimed.

As per claims 18, 19, 25-30, 58, 59, and 78-79, Choudhury anticipates a method and system with program codes for analyzing and supporting connection queuing for feedback controlled traffic for network capacity and support activity with feature limitations very similar to the claimed invention (Summary of the Invention). According to Choudhury, the systemized method includes means and steps:

Determining a round trip transmission time for the link (arrival rate),

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Determining a queue function based upon predetermined system traffic conditions for a first node (col. 4, lines 27-41),

And determining a control function for the second node based upon the queue function (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 6, line 31 to col. 7, line 26).

As per claim 20-23, Choudhury anticipates linear estimate queue size based on traffic flow, queue management, network version or line, and acknowledgement or random detection as claimed.

As per claims 24 and 31-33, Choudhury anticipates drop rate to avoid traffic congestion, transmission delay, queue sizes, etc (cols. 5-6).

As per claim 35, Choudhury anticipates step of evaluating the maximum queue law function using the average queue size, which is related to queue law as claimed.

As per claim 36, Choudhury anticipates a method and system with program codes for analyzing and supporting connection queuing for feedback controlled traffic with feature limitations very similar to the claimed invention (Summary of the Invention). According to Choudhury, the systemized method includes means and steps:

Determining a round trip transmission time for the link (arrival rate),

Determining a queue function based upon predetermined system traffic conditions for a first node (col. 4, lines 27-41),

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And determining a control function for the second node based upon the queue function (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 6, line 31 to col. 7, line 26).

As per claims 37, 40, and 85, Choudhury anticipates a method and system with program codes for analyzing and supporting connection queuing for feedback controlled traffic with feature limitations very similar to the claimed invention (Summary of the Invention). According to Choudhury, the systemized method includes means and steps:

Determining a sampling period for queue size estimate

Determining a round trip transmission time for the link (arrival rate),

Determining a queue function based upon predetermined system traffic conditions for a first node (col. 4, lines 27-41),

And determining a control function for the second node based upon the queue function (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 6, line 31 to col. 7, line 26).

As per claims 39, 85, and 87-88, Choudhury anticipates a method and system with program codes for analyzing and supporting connection queuing for feedback controlled traffic with feature limitations very similar to the claimed invention (Summary of the Invention). According to Choudhury, the systemized method includes means and steps:

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Determining a maximum or longest queue law function based upon maximum expected traffic conditions (col. 5, lines 55-67),

Determining a round trip transmission time for the link (arrival rate),

Determining a queue function based upon predetermined system traffic conditions for a first node (col. 4, lines 27-41),

And determining a control function for the second node based upon the queue function (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 5, lines 62-67, col. 6, line 31 to col. 7, line 26).

As per claim 41, Choudhury anticipates queue law function such as maximum or longest queue is determined based on current traffic conditions within the network (col. 5, lines 55-61).

As per claims 42, 85, and 88-90, Choudhury anticipates a weighting factor such as roundtrip delay for use in calculating queue size of a buffer in a node of the network for packet transmission. The method of modeling queue size control function includes steps

Determining a sampling period for queue size estimate (col. 5, lines 1-10),

Determining a round trip transmission time for the link,

Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function or queue model, which is based in part on the round trip transmission time, data flow rate, buffer windows (col. 9, line 24 to col. 15, line 65, col. 21, lines 29-37), and



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determining a control function for the second node based upon the queue function (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 5, lines 62-67, col. 6, line 31 to col. 7, line 26).

As per claims 46-53, Choudhury anticipates the limitations as claimed for controlling queue functions.

As per claims 54, 88, and 90, Choudhury anticipates a weighting factor such as roundtrip delay for use in calculating queue size of a buffer in a node of the network for packet transmission. The method and system of modeling queue size control function includes means and steps:

A configuration module for receiving as input system parameters and generating a control function for controlling traffic flow (Fig. 3A),

Determining a sampling period for queue size estimate (col. 5, lines 1-10),

Determining a round trip transmission time for the link,

Determining the average queue size, maximum and minimum queue size at the intersection point of a node congestion control function and a queue law function or queue model, which is based in part on the round trip transmission time, data flow rate, buffer windows (col. 9, line 24 to col. 15, line 65, col. 21, lines 29-37), and

determining a control function for the second node based upon the queue function (col. 6, lines 9-48), wherein the control function prompts a gradual increase of drop probability in an overload condition (col. 5, lines 62-67, col. 6, line 31 to col. 7, line 26).

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As per claims 55-56, Choudhury anticipates queue service or management policy, queue size or threshold values as queue control parameters as claimed.

As per claim 60, Choudhury anticipates current traffic flow conditions.

Similarly, claims 61-92 are directed to a computer program product implemented in a computer readable medium to perform steps in the method claims above. Claims 61-92 are thus rejected under the same rationales as set forth.

### ***Response to Arguments***

Applicant's arguments filed 02/01/2006 have been fully considered but they are not persuasive.

In response to applicants' argument Choudhury does not disclose or describe configuring parameters of a packet drop scheme (page 20), the examiner responds such argued feature is not well defined in at least claim 1. For packet drop scheme and packet drop parameter, Choudhury describes the packet drop scheme, fair queue drop methods (col. 5, lines 38-40, 57-60, col. 6, lines 38-40) and queue configuration parameter, such as queue length, connection pins, queue threshold value, packet size variables, traffic patterns, etc. (col. 5, lines 46-51, col. 5, line 62 to col. 6, line 48), and packet drop scheme simulation with configuration parameters for the queue/dequeue model col. 6, lines 38-48, for example.

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In response to applicants' argument Choudhury fails to disclose queue occupancy in length and drop scheme or policy to deal with queue length occupancy with including maximum occupancy or fullness to improve quality of service and the protection of overloading conditions (col. 5, lines 25-39, lines 62-67, col. 6, lines 5-7, lines 31-48, for example).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. US patent no. 6,147,301, issued to Troxel, Gregory, on Nov. 2000
2. US patent no. 6,606,301, issued to Muller et al, on Aug. 2003

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

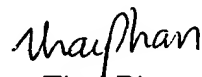
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Thai Phan whose telephone number is 571-272-3783.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Apr. 06, 2006

  
Thai Phan  
Patent Examiner